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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/028,411      | 12/19/2001  | Dmitri D. Ryutov     | IL-10758            | 3545             |

7590

10/10/2003

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EXAMINER

CURTIS, CRAIG

| ART UNIT | PAPER NUMBER |
|----------|--------------|
| 2872     |              |

DATE MAILED: 10/10/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/028,411

Applicant(s)

RYUTOV ET AL.

Examiner

Craig H. Curtis

Art Unit

2872

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on 19 December 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-47 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6, 8, 10-12, 15-18, 20, 25-27, 30, 31, 33, 34, 37, 41, 42, 44 and 46 is/are rejected.
- 7) ☒ Claim(s) 4, 5, 7, 9, 13, 14, 21-24, 28, 29, 32, 35, 36, 38-40, 43, 45 and 47 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5. 6) ☐ Other: \_\_\_\_\_

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## *DETAILED ACTION*

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

**1. Claims 1-3, 6, 8, 10-12, 15-18, 20, 25-27, 30, 31, 33, 34, 37, 41, 42, 44, and 46 are rejected under 35 U.S.C. 102(b) as being anticipated by Hughes (4,190,327).**

With regard to claims 1, 25, and 41, Hughes discloses the invention as claimed--[a] renewable mirror and (by extension of the structural teachings of set out in independent claims 1 and 25) a method of providing a renewable mirror (w/r/t independent claim 41), comprising:

(providing) a liquid (for producing a reflective unit): col. 2, ll. 23;

(providing) a penetrable unit (10), and

a system for operatively connecting said liquid to said penetrable unit to provide a mirror that can be universally oriented (see Figs. 1-4b).

With regard to claims 2 & 26, said penetrable unit is a porous unit (see Fig. 2).

With regard to claims 3, 27, & 42, said penetrable unit is a porous substrate (Id.).

With regard to claims 6, 30, & 44, said penetrable unit is contoured (Id.).

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With regard to claims 8 & 31, said penetrable unit comprises holes extending through said penetrable unit (Id.).

With regard to claims 10, 11, 15, & 33 please refer to Fig. 1 (at least elements 26 & 22 reading on actuating device recited in claim 33) and col. 2, ll. 19-67--col. 3, ll. 21.

With regard to claims 12 & 34, please refer to Figs. 4a & 4b.

With regard to claim 16-18, 20, & 37, please refer to col. 2, ll. 32-35.

With regard to claim 46, please refer to Fig. 1 & associated text.

### *Allowable Subject Matter*

**2. Claims 4, 5, 7, 9, 13, 14, 19, 21-24, 28, 29, 32, 35, 36, 38-40, 43, 45, and 47 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.**

### *Reasons for Allowance*

**3.** The following is an Examiner's statement of reasons for allowance:

The claims would be allowable over the prior art for at least the reason that the prior art fails to teach or to reasonably suggest wherein: with respect to claims 4 & 28, *said penetrable unit is a capillary substrate*, with respect to claims 5, 29, and 43, *said penetrable unit is planar*, with respect to claims 7 & 45, *said penetrable unit is a figured porous substrate*, with respect to claims 9 & 32, *said holes are capillary size holes*, with respect to claims 13 & 35, *said system further comprises a flexible membrane*,

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with respect to claims 14 & 36, *said system for operatively connecting said liquid to said penetrable unit to provide a mirror that can be universally oriented is a bellows*; with respect to claim 19, *said liquid is a NaK alloy (40 to 90% of K)*; with respect to claims 21 & 38, *said liquid is a dielectric liquid*; with respect to claim 22, *said liquid is an alcohol; including electrodes situated over or under said liquid that change the shape of said liquid when a voltage is applied to said electrodes*; with respect to claim 24, *said electrodes are ring electrodes*; with respect to claims 39 & 40, respectively, *said mirror includes electrodes situated at some distance from said liquid means that change the shape of said liquid means when a voltage is applied to said electrodes, said electrodes being ring electrodes*; and finally, with respect to claim 47, *the method of providing a mirror of claim 41 including changing the shape of said liquid by positioning electrodes relative to said liquid and energizing said electrodes*, as set forth in the claimed combination.

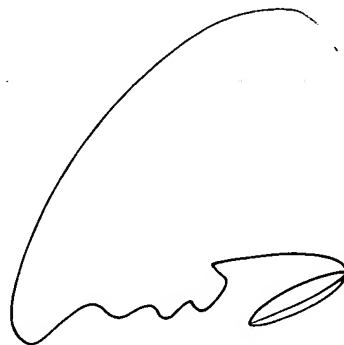
**4.** Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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### *Contact Information*

**5.** Any inquiry concerning this communication or earlier communications from the examiner should be directed to Craig Curtis, whose telephone number is (703) 305-0776. The facsimile phone number for Art Unit 2872 is (703) 308-7722.

Any inquiry of a general nature regarding the status of this application should be directed to the Group receptionist, whose telephone number is (703) 308-0956.

A handwritten signature in black ink, appearing to read 'Audrey Chang', with a large, sweeping loop at the top and a smaller, more complex loop at the bottom right.

**Audrey Chang  
Primary Examiner  
Technology Center 2800**

*C.H.C.*

Craig H. Curtis  
Group Art Unit  
29 September 2003